

**SUPERFUND PRELIMINARY CLOSE OUT REPORT
(Long Term Remedial Action)**

**Beckman Instruments Superfund Site
Porterville, California**

**SFUND RECORDS CTR
88074084**

I. INTRODUCTION

This Preliminary Close Out Report documents that Beckman Instruments, Inc. (Beckman) has completed all construction activities for the Beckman Instruments Superfund site in accordance with OSWER Directive 9320.2-3C. EPA and the State of California conducted a Pre-Final Inspection of this Long-Term Remedial Action (LTRA) on June 8 and 9, 1993, and determined that Beckman's contractor has constructed the remedy in accordance with the remedial design (RD) plans and specifications. Activities necessary to achieve site completion are underway.

II. SUMMARY OF SITE CONDITIONS

Background

The Beckman Instruments Superfund site is located near the southern limit of the City of Porterville in Tulare County, approximately 25 miles southeast of Visalia on the eastern fringe of California's Central Valley. The site study area is several square miles and consists of Beckman property and farm/residential property to the west of the site. Beckman has manufactured electronic equipment assemblies, subassemblies, and printed circuit boards in Porterville since 1967.

Industrial processes used at the plant include electroplating and degreasing. The waste streams from these processes have included spent halogenated solvents, inorganic and acid solutions, salts, metal-laden solutions, and plating bath sludges. Between 1967 and 1974, wastewater was discharged to the City of Porterville sewer system. From 1975 until early 1983, various waste streams were discharged to an on-site solar evaporation pond. From 1983 to present, waste streams have been treated on-site. Solid wastes are transported to appropriate disposal facilities. Treated liquids are discharged to the City of Porterville sewer systems.

Liquid was detected in the evaporation pond's leak detection sump intermittently beginning in 1978. In response to enforcement actions taken by the Regional Water Quality Control Board, Central Valley Region (the Board) and the California Department of Health Services (DHS, now the

Department of Toxic Substances Control or DTSC), Beckman initiated groundwater monitoring in the vicinity of the pond in late 1982 in conjunction with closure of the pond. Discharges to the pond were terminated in January 1983. This solar pond is considered the main source of widespread groundwater contamination in the upper aquifer and limited contamination of the upper aquitard and lower aquifer. Wastes also may have been placed in other areas near the plant.

DHS placed the site on California's Superfund State Priority Ranking List pursuant to Section 25356 of the California Health and Safety Code. At DHS's request, EPA assumed the lead role in overseeing remedial studies and cleanup activities at the site in October 1985. On June 10, 1986, EPA placed the site on the National Priorities List (NPL).

Remedial Planning Activities (pre-ROD)

Through the early 1980s, the upper and lower aquifers in the vicinity of the Beckman plant were used to supply domestic and irrigation water to local residents through private wells. Beginning in 1983, institutional controls were implemented at the site to limit the use of groundwater in the vicinity of the plant. Beckman provided an alternate domestic water supply to residents potentially affected by the plume of groundwater contamination. Tulare County put a restriction on the use of well water for domestic purposes. Subsequently, Beckman was responsible for connecting approximately 300 residences with municipal water supplies.

By mid-1985, Beckman had identified a contaminant plume extending approximately 9,000 feet from the suspected source area. Shortly thereafter, under the direction of the Board, Beckman commenced operation of a containment/reclamation system to contain the westward (downgradient) migration of volatile organic compounds (VOCs) in the upper aquifer, control the groundwater level gradients in the area of VOC contamination, and reclaim upper aquifer groundwater west of State Highway 65. Beckman augmented the capacity and areal coverage of this containment/reclamation system beginning in mid-1986 based on groundwater monitoring data indicating high concentrations of VOCs near the plant.

Beckman conducted an RI at the site pursuant to the terms of an Administrative Order on Consent (AOC) with EPA, submitting the RI Report in 1988 and the FS Report in early 1989. The RI identified the presence of VOCs in groundwater, including TCE, 1,1-DCE, 1,1,1-TCA, Freon 113, and 1,1-DCA. In addition, the RI identified limited lead soil contamination on Beckman property adjacent to one of the buildings. EPA prepared an addendum to the FS Report

and released the FS and the proposed plan for remedial action for public review and comment in mid-1989.

Remedy and Performance Standards

EPA issued a Record of Decision (ROD) on September 26, 1989 specifying the following remedy:

- Extraction and treatment by air stripping for contaminated groundwater in the upper aquifer, upper aquitard, and lower aquifer. Treated water would be disposed of into infiltration basins to recharge groundwater, or could be used for irrigation.
- Excavation and off-site disposal for soils contaminated with lead above 200 ppm.

EPA prepared an Explanation of Significant Differences (ESD) to the ROD, which was signed by the Regional Administrator on March 6, 1991. The ESD clarifies that the numerical cleanup "goals" specified in the ROD are Applicable or Relevant and Appropriate Requirements (ARARs) for the selected remedy and, therefore, under CERCLA, Beckman is obligated to attain such levels unless they are changed through a ROD amendment.

Federal MCLs are designated as the cleanup standards for the upper aquifer, upper aquitard, and lower aquifer. Where state MCLs are more stringent (1,1-DCE), the state MCL is designated as the cleanup standard. For those chemicals which did not have an established state or federal MCL (Freon 113), the state action level (SAL) is designated as the cleanup standard.

**Table 1. Clean-up and Treatment Standards for Groundwater
Beckman Instruments Superfund Site**

Chemical	Clean-up Level (ppb)
1,1-Dichloroethane	5
1,1-Dichloroethylene	6
1,1,1-Trichloroethane	200
Trichloroethylene	5
Freon 113	1,200

The cleanup standard established in the ROD for soils contaminated with lead is 200 milligrams per kilogram (mg/kg or parts per million, ppm) and is based on risk through direct contact and dust inhalation.

Remedial Design and Construction Activities

As of January 1990, Beckman had attained ROD cleanup levels (Table 1) in the upper aquifer and has ceased operating the upper aquifer containment/reclamation system, but is still monitoring the upper aquifer. Beckman completed removal and off-site disposal of lead-containing soils in March 1990.

EPA issued a Unilateral Administrative Order (UAO) for Remedial Design/Remedial Action (RD/RA) on September 28, 1990 with an effective date of December 17, 1990. This order encompassed the documentation of work already in progress as well as additional work to be undertaken to remediate the upper aquitard and lower aquifer.

EPA approved Beckman's RD Plan in March 1992. The RD Plan details the soil excavation operations previously completed in March 1990. The RD Plan also includes detailed plans for the groundwater extraction and treatment system which had been constructed and operated under direction of the Board. This action was consistent with EPA's selected remedy. EPA approved Beckman's RA Plan in October 1992. In August 1992, because the comments on the draft RA Plan did not affect the nature of the remedial activities, EPA approved Beckman's request to commence construction of the final phase of the remedy (Phase II upper aquitard and lower aquifer extraction wellfield). Well drilling and construction were performed by contractors and subcontractors to Beckman.

As detailed in the RD, the majority of the Phase I wells were installed or converted from existing wells in late 1990 as part

of Beckman's predesign testing program. With EPA approval, Beckman completed the Phase I wellfield by converting an existing well to an extraction well in November 1991. The Phase I wellfield has been operational since August 1991. EPA conducted an inspection of the Phase I extraction wellfield and treatment system, including split-sampling of selected monitoring wells in all three geologic units, on September 10, 1992.

In October 1992, Beckman completed Phase II construction of the upper aquitard and lower aquifer extraction wells, including necessary instrumentation. On January 8, 1993, Beckman completed construction of the piping extensions necessary to connect the new extraction wellfield to the existing air-stripping tower near the plant. This air-stripping tower was originally designed for the upper aquifer containment/reclamation system, and is being used for the upper aquitard and lower aquifer remedies, as well. The full Phase I and Phase II wellfields have been operational since January 22, 1993. In total, Beckman has installed 71 monitor wells, 63 piezometers, 10 partially penetrating monitor wells, 15 containment/reclamation wells and 2 cluster well sets in the upper aquifer; 33 monitor wells, two exploration borings, and 4 aquitard study wells have been completed in the lower aquifer; 34 piezometers and 4 extraction wells have been completed in the upper aquitard.

The pre-final inspection was conducted at the site on June 8 and 9, 1993, with representatives from EPA, DTSC, CDM Federal Programs Corporation (EPA's technical oversight contractor), and Hargis & Associates (Beckman's contractor). All components of the treatment system are properly functioning and the system is capable of continuous, automated operation. Treatment system laboratory results produced at the inspection indicate that the system is performing properly. Interpretation of the resulting analytical data indicates that the groundwater extraction and treatment system has been constructed in accordance with the RD plans and specifications and is working toward eventual aquifer remediation.

III. DEMONSTRATION OF QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) FROM CLEANUP ACTIVITIES

All sample collection activities at the site were conducted in accordance with EPA protocols. Details of the analytical procedures and methods utilized are included in the site specific Remedial Design Sampling and Analysis Plan, dated July 3, 1991, and prepared for Beckman by Hargis & Associates.

The QA/QC program used throughout the RI and during the RD and RA phases has been sufficiently rigorous to enable EPA and the State of California to determine that all analytical results are accurate to the degree needed to ensure satisfactory execution of the ROD. All monitoring is performed using EPA-approved methods.

Pursuant to the UAO, Beckman provides EPA with a quarterly report of groundwater quality data, including an assessment and validation of project data.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

Construction completion at the site shall be documented by the signature of this Preliminary Close Out Report. EPA will document in the RA Report that EPA and the State have jointly determined that the remedy is fully operational and functional (O&F). Pursuant to 40 CFR 300.435(f)(2), "A remedy becomes operational and functional either one year after construction is complete or when the remedy is determined concurrently by EPA and the State to be functioning properly and is performing as designed, whichever is earlier." EPA and the State made this O&F determination at the inspection conducted on June 9 and 10, 1993.

The following is a schedule of activities to be completed:

TASK	ESTIMATED COMPLETION	RESPONSIBLE ORGANIZATION
Final RA Report	9/30/93	EPA/State/Beckman/Hargis
Five-Year Review	August 1997	EPA
Long-Term Monitoring Completion/Cleanup Verification	tbd (see below)	EPA/State
Final Inspection and Close Out Report	tbd (see below)	EPA

Based on currently available information and computer modeling performed during the design phase, the cleanup criteria for groundwater are expected to be achieved in 2-48 years. This very broad range will be refined with operational data as it becomes available. When clean-up levels have been achieved, pumping will cease and no further operation and maintenance will be required. Subsequently, long-term monitoring will commence for up to twenty years in each geological unit to ensure that groundwater concentrations remain below clean-up levels.

SUMMARY OF FIVE YEAR REVIEW STATUS

Section 121(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires that EPA review, no less often than each five years, any remedial action selected that results in any hazardous substances, pollutants, or contaminants remaining at the site. The ROD for the Beckman

Instruments Superfund site contains cleanup standards that, when attained, will allow unlimited use and unrestricted exposure. Therefore, a five-year review is not required by CERCLA. However, OSWER Directive 9355.7-02 ("Structure and Components of Five-Year Reviews," May 23, 1991) provides for five-year reviews conducted by EPA as a matter of policy (Policy Review). Reviews are conducted at sites where unlimited use and unrestricted exposure clean-up levels will be attained, but require five or more years to attain those levels after construction of the remedial action.

The Beckman site will be subject to a five-year policy review in 1997. Based on the five-year review, EPA, in consultation with the State of California, will determine whether human health and the environment are being protected by the remedial action being implemented. Further Five-Year Reviews will be conducted pursuant to the OSWER Directive cited above, or other applicable guidance where it exists.

Long-term operation and maintenance of the groundwater extraction and treatment system and sampling of the groundwater wells will be under the direction of Beckman with EPA oversight. Beckman has been required to monitor groundwater wells quarterly in order to determine groundwater quality of the upper aquifer, upper aquitard and lower aquifer.

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9.21.93
Date